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ABSTRACT

In a project led by Research for Better Schools (RBS), educators work with researchers to improve basic skills learning. Based on research findings relating the amount of time allocated for instruction and student achievement, one school made scheduling changes to reduce the time spent moving from one classroom to another. Other classroom variables directly related to student achievement include engagement rate, student engaged time, prior learning, and instructional overlap. The RBS approach to instructional improvement involves training supervisors and teachers to run through a four-phase decision-making cycle related to each of these five variables. First, teachers collect data on student achievement and their own classroom procedures. Second, teachers compare their data with data that researchers have collected on classrooms where achievement results are known to be high. Third, teachers select or prepare ways to modify their classroom conditions, and last, teachers implement their modifications. Staffs can be trained to calculate engaged time, try new techniques, and tag learning deficiencies before planning instruction. Results show that improvement efforts can succeed provided that school staff at all levels lend in their support. (LH)

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SCHOOL DISTRICT'S POLICY CULTIVATES STUDENT GROWTH

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School District's Policy Cultivates Student Growth

Research studies show that all levels of the school system contribute to student achievement.

by Üllik Rouk

No longer are classroom teachers the only ones shouldering the burden of improving student achievement. In a number of school districts, educators and researchers alike are discovering that improvement efforts can succeed, provided that school staff at all levels lend their support.

Educators in these districts are working with researchers to improve basic skills learning. The project is led by Research for Better Schools (RBS), the Philadelphia-based regional educational laboratory.

"What we're talking about is instructional leadership for basic skills improvement that cuts across all three levels of a school system — the classroom, the school and the district office," explains David Helms, RBS project director. "To apply research results in classrooms without taking into consideration the necessary support from other levels of the school system just about guarantees you'll end up in a dead end."

The research results Helms is referring to are from the studies that show how certain instructional and classroom management practices affect student learning. For instance, numerous studies have demonstrated that achievement is tied to such factors as the amount of time teachers devote to instruction, the degree to which students actually engage in learning, and whether students have mastered previous subject matter.

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RBS staff members have pulled such findings together and used them to develop a school improvement training project. Teachers and administrators participating in the project are establishing conditions in their own schools and classrooms that, according to the research, contribute to high student achievement.

A school ups learning time

Nathan Hale Elementary School in New Brunswick, N.J., for example, has made school-wide scheduling changes to reduce the time students spend moving from one classroom to another. The result is an increase in the time available for instruction.

One of the strategies the Nathan Hale staff used was to combine 30-minute, three-times-a-week physical education classes into two 45-minute classes. Music classes, previously 30 minutes twice a week, were similarly combined into a one-hour period.

Staff followed the same procedure for scheduling remedial instruction. Whereas students used to go to remedial classes five days a week for 30 minutes a day, they now go three times a week for 45 minutes.

In all three instances, the time spent in special classes has remained the same, but students are losing fewer minutes of classroom instruction. Interruptions caused by students going in and out of classrooms have been reduced as well.

Principal Maurice Williams reports that these and other similar scheduling changes have reduced the time spent in moving students from one classroom to another by about one-third to one-half.

Obviously, these changes could not have been accomplished without school-wide cooperation.

"We sometimes tend to forget," Helms says, "that teachers' classroom procedures are shaped, in great part, by policies established by the principal or school district. Teachers may have little or no influence on decisions made at other levels. For improvement to occur, everyone in the system, from the superintendent on down, needs to collaborate by providing the kind of support and influence appropriate to their role."

The RBS project thus stresses the involvement of staff members from all levels in the school system. But the goal, ultimately, is to improve classroom instruction and student learning in the basic skills.

Teachers examine practices

Several years ago, Helms and his colleagues began to identify classroom variables that are directly related to student achievement in elementary reading and mathematics. So far, their search has sorted out five such variables:

- ☐ allocated time — the amount of time available for instruction;
- ☐ engagement rate — the proportion of allocated time that students are actively involved in academic tasks;
- ☐ student engaged time — the allocated time multiplied by the engagement rate for each subject area;
- ☐ prior learning — what students have already learned; and

- ☐ instructional overlap—the degree to which instruction matches the content reflected on achievement tests.

The RBS approach to instructional improvement involves training supervisors and teachers to run through a simple four-phase decision-making cycle related to each of these five variables. The cycle helps teachers decide how their classroom is operating, which procedures need to be modified, the extent of the modification, and the method by which the modification should be made.

"Our strategy is designed for teachers to make their classroom decisions according to their own examination of classroom data, not according to what others believe may be useful," notes Helms.

The first phase in this strategy calls for teachers to collect data on student achievement and on their own classroom procedures. This information may come from either standardized or teacher-made tests, and from classroom observations by a supervisor, principal or another teacher.

Next, teachers compare their data on achievement and classroom procedures with data that researchers have collected on classrooms where achievement results are known to be high. Any discrepancies point to where improvements might be made.

In the third phase, teachers select or prepare ways to modify their classroom conditions so that they more closely resemble the conditions of effective classrooms. This may be done, for example, by making changes in the content of instruction, adopting a simple but new management practice, or learning a whole new set of curriculum skills.

In the last phase of the improvement cycle, teachers implement their modifications. Subsequent rounds of data collection and comparison tell teachers whether or not they have achieved their desired results.

The cycle is repeated for each variable.

"Realistically," explains Helms, "none of the variables stand alone, even though they are distinct and must be treated separately. They're all interrelated and affect both each other and the learning process.

"For example, radically increasing the amount of time students are engaged in academic tasks may have very little effect on achievement if the students' prior learning is insufficient for mastering current content. Or similarly, if the content studied is poorly represented in achievement tests, improvements in instruction and learning will not be reflected in test scores.

"That's why it's important for teachers, as part of effective teaching, to systematically attend to the cluster of variables," he remarks.

System-wide efforts are best

But teachers shouldn't be expected to carry out this improvement process on their own, because classroom practices are affected by school and district procedures.

For instance, a key element in the RBS approach to improvement is the alignment of instruction with the goals of the school. "It just doesn't make sense for instructional leaders, including teachers, to direct instruction to one set of outcomes while the system and the community are looking for and assessing a completely different set. Yet, too often this is the case," comments Helms.

Instructional leadership is required to ensure that classroom, school and district goals and policies are in harmony. And everyone can make a contribution.

"Let's face it," Helms says, "ultimately students are responsible for their own learning. Teachers are responsible for establishing the best conditions for learning. The school principal is responsible for instructional leadership in the school, and the superintendent is responsible for getting the best instructional leadership into the schools."

The notion of instructional leadership rests on the findings of many researchers who have shown that school improvement isn't something that just happens. Someone has to instigate the process, train teachers, and then support and sustain the improvement effort within a given school. Usually, the building principal plays this role, with the help of the district office.

A superintendent takes the lead

One superintendent who has adopted this philosophy of district-wide improvement is Ronald Larkin, superintendent of schools in New Brunswick, N.J. Larkin has, in fact, made the improvement of instruction, with the principal as an instructional leader, one of his district's top goals this school year.

The New Brunswick School District first began developing its improvement approach with RBS back in 1978, initially in a single elementary school. A year later, two additional schools joined the effort. Now, during the 1981-82 school year, the project is being expanded to take in the district's six other elementary schools as well as a high school remedial program.

What Larkin is looking for, specifically, is a sharp increase in students' basic skills achievement scores. The highly urbanized school district has a student population that is 85 percent black and 12 percent Hispanic. Last year, its schools were cited as being in need of massive improvements in students' basic skills scores by the New Jersey Department of Education.

Larkin, then new to the job, explored a number of improvement options before he selected the RBS approach. He was particularly impressed, he says, with the way the approach addresses the research on students' prior learning.

This research indicates that students' prior learning accounts for as much as 50 percent or more of the achievement differences among students at the end of the year. Students' failure to learn content is frequently due to overly ambitious and hurried instructional plans that don't take students' prior learning deficiencies into consideration.

The RBS approach pays specific attention to prior learning when training teachers to prepare their annual instructional plans.

"The instructional improvement approach forces us into a solid planning mode," explains Larkin. "We're going to begin by assessing students' prior learning and then use that information to determine where we want our students to be at the end of the year. Once we know what we want to accomplish, we can adjust our instructional plans and use of classroom time accordingly."

The superintendent acknowledges the fact that district-wide implementation of the improvement approach is

David Helms

going to take a great deal of training for the more than 375 teachers and other school district staff who eventually will be involved in the project. As a result, the school district has mapped out an entire year's training program.

District staff and principals were trained by teams from RBS and from Educational Improvement Center-Central during the summer of 1981. (Educational Improvement Centers are regional agencies associated with the state education department that provide direct assistance to New Jersey school districts.)

Training concentrated on the five variables as well as on the management and leadership skills that principals will need to lead and support teachers in basic skills improvement.

District staff and principals, assisted by staffs from schools that have already adopted the approach, will be training teachers throughout the 1981-82 school year. Implementation is an ongoing process. As teachers learn to use each phase of the improvement cycle, they'll implement it in their classrooms before going to the next phase.

Staffs calculate engaged time

Training in the time variables, for example, alerts teachers to three different types of time — student engaged time, allocated time and engagement rate. The goal is to help teachers increase the amount of time students are actively engaged in learning.

Teachers begin the improvement cycle by first determining how much time they make available for students to spend on reading and mathematics instruction — minus the time taken by assemblies, special classes, fire drills and other classroom interruptions. To determine instructional time for a particular subject, teachers generally keep a simple log in which they note what time instruction begins and ends, and the number of minutes spent in the activity.

Next, teachers or supervisors collect information on engagement rate — the proportion of allocated time that students are actively engaged in academic tasks. Academic tasks are activities such as reading, writing, answering a question, listening to the teacher's presentation, or anything else that indicates students are actively participating in the intended learning experience.

Engagement rate information is collected by someone other than the teacher — the principal, a supervisor or another teacher — who observes the classroom while instruction is taking place.

A number of data collection instruments help observers identify and record instances of unengaged behavior by students. The observers also specify exactly what the unengaged students are doing.

Teachers who have used the approach have adopted Ms. Duo as an acronym to help them remember the five major categories of unengaged student behaviors. Ms. Duo stands for management/transition, socializing, discipline, unoccupied/observing, and out-of-room.

To ensure that the data collected are reliable, observations take place during different times in the instructional period and on at least two separate occasions. During each observation, the entire class is scanned and any unengaged behaviors are noted.

Using this data, teachers calculate engagement rates for the class as a whole. If a class of 20 students is observed 10 times, for example, a total of 200 instances of student behavior are observed. Only instances of unengaged behavior are recorded, however. So if 40 such instances are tagged, then the unengaged rate is 40 out of 200, or 20 percent. Conversely, 80 percent of the class was actively engaged in learning.

After the engagement rate is determined, teachers can then calculate student engaged time for each day and subject by multiplying the total allocated time by engagement rate. For instance, if engagement rate during mathematics instruction on a particular day was calculated at 80 percent, and 50 minutes were allocated to instruction, student engaged time in mathematics on that day was 40 minutes.

With this information in hand, teachers then compare their classroom data with what researchers say about how different levels of engaged time influence students' achievement in different grades and in different subjects.

Reference graphs have been developed to assist teachers with this comparison. The graphs relate engaged time of classes in the research studies to achievement growth recorded for those same classes. Teachers whose own student engaged time is associated with less than average achievement growth may decide to work on classroom strategies that will increase the amount of time their students spend actively engaged in learning.

Teachers try new techniques

The amount of engaged time can be raised in two ways: by upping the time allocated to instruction and by increasing students' levels of involvement during instruction.

Helms explains. "If an inadequate amount of time is allocated to instruction in a subject, students' engagement *rates* can be high — for instance, 90 percent — and yet the *time actually spent* actively engaged in learning might be too low to result in desired achievement gains," he says. "In this instance,

a teacher would most likely decide to focus on increasing allocated time.

"As an example, a teacher might discover that after subtracting time for interruptions, only 30 minutes a day is actually allocated to reading instruction. Even with 90 percent engagement rates, the class would only be spending 27 minutes a day actively involved in reading instruction.

"On the other hand, the time allocated to reading might be high, say 90 minutes, but engagement rates might be low," he continues. "In this case the teacher would probably decide to implement strategies aimed at increasing students' involvement in learning."

Strategies for increasing both allocated time and student involvement are covered in the RBS training program. These strategies range from very simple and obvious classroom procedures to some that are more encompassing and that may involve the total school. Strategies that individual teachers can employ to increase student involvement, for instance, include: circulating among students to answer questions instead of having students come to them; giving students extra assignments in advance so they will stay engaged in academic work after they've finished their first assignments; and rearranging students' seating to discourage disruptions. The scheduling changes made by New Brunswick's Nathan Hale Elementary School and described earlier provide a good example of a school-wide strategy for increasing allocated time.

All of the strategies suggested to teachers are drawn from research and have actually been used or recommended for use under certain classroom conditions. In practice, though, teachers and administrators frequently tailor-make their own techniques for the special circumstances in which they work.

Learning deficiencies tagged

The improvement approach is similar for each of the five variables: teachers take a look at their own classrooms and students, examine what the research has to say, and decide which areas to target for improvement.

Take prior learning. Both research and common sense indicate that what students are able to learn depends, to a great extent, on what they already know. To avoid wasting time on content that students are unprepared to learn, teachers need information about their students' prior learning.

Teachers participating in the RBS project obtain this information by looking at their students' achievement test scores from the previous year. Generally, test scoring companies provide schools with percentile scores for each classroom at the end of the school year. According to Helms, though, most companies are willing to recalculate the scores for the new classes that form at the beginning of the next year. If not, teachers can manually calculate the percentile scores for their classes.

What do teachers do with this information? Well, research has shown that initial classroom percentiles are good predictors of subsequent achievement. In other words, classes made up of students who have done well in the past can be expected to continue to do well in the future; classes with poor records are likely to maintain low rankings, unless corrective action is taken.

Reference graphs have been developed to depict relationships between prior and subsequent achievement at adjacent grade levels. These graphs give teachers the information they need to decide whether or not major efforts are needed to address prior learning deficiencies. The assumption is that if nothing special is done to boost achievement during the coming year, the students will, as a class, perform in accordance with their prior test scores.

If teachers determine that special action is required, they can take a closer look at particular test items, comparing their classes' scores with national norms or with students' performances on state and local tests. This comparison will reveal exactly where deficiencies lie. Teachers can then plan appropriate instructional strategies. Where instruction in prerequisite mathematics skills is necessary for success in the current year's work, for example, teachers can incorporate instruction on the skill immediately prior to introducing the new, related content.

Like the strategies for increasing allocated and engaged time, the instructional strategies selected to correct prior learning deficiencies depend on particular circumstances in each classroom or school. Again, decisions about how to proceed rest with the teachers and the principal.

Because of the emphasis on local decision making, Helms and his colleagues maintain that their training program is essentially an "approach" to improvement, not a prescription.

"Nuances in the classroom require the teacher to readjust instruction as often as the situation requires," states Helms. "And since conditions differ substantially from classroom to classroom and from school to school, the most effective way to help school staffs make good instructional decisions is to give them a problem-solving approach that works in different circumstances."

You can participate

Helms and his staff have put this problem-solving approach to school improvement together during the past several years. Results in schools have been encouraging. But this year, 1981-82, is the first time that training materials for all five learning variables have been ready for use with teachers and administrators. Consequently, the total project is being field tested in three school districts during the coming year to determine effects on teacher behaviors and student achievement.

Two sets of training materials have been developed. One set provides technical information and procedures for using the improvement cycle in the classroom. The second set is for program leaders and includes information and procedures for fostering the development, maintenance and evaluation of the approach in a school district.

RBS has also produced a series of videotapes of classrooms. One tape demonstrates how to collect data on student engaged time. The others cover each of the four phases of the improvement cycle for each variable.

These materials as well as technical assistance in implementing the RBS improvement process are available on a cost-recovery basis. Inquiries should be addressed to David Helms, project director, Research for Better Schools, 444 N. Third St., Philadelphia, PA 19123.

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